News Release

No. 0544009-2 (Army joins program to protect Chesapeake Bay underwater grasses)

By Susan Phelps

Beneath the waters of the Chesapeake Bay, long streaming grasses sway with the current. Small minnows and juvenile crabs peep from behind these flowing fronds, hiding from the larger fish that are hunting for a mid-day snack. Occasionally, ducks poke their heads through the water's surface to nibble at the grasses' tender tips.

These underwater grasses, also called submerged aquatic vegetation or SAV for short, are considered a vital part of the Chesapeake Bay ecosystem because they provide oxygen to the Bay's waters and are a source of food, shelter, and nursery areas for fish and shellfish. This vegetation also stabilizes the bottom sediments of the Bay and helps protect the Chesapeake shoreline by reducing the wave energy of the Bay's currents. The grasses also improve the Chesapeake's water quality by filtering and trapping sediments, absorbing and thereby reducing the overabundance of nutrients (phosphorus and nitrogen), and removing certain toxic pollutants from the water. With all of these functions and values, the U.S. Environmental Protection Agency's Chesapeake Bay Program (CBP) considers SAV to be an important indicator of the Chesapeake's health, because these grasses are not subject to harvesting pressure and grow best in good water quality conditions.

For many years, environmental staff at Aberdeen Proving Ground (APG), Md., tried to establish an SAV program, but tight budgets and limited resources thwarted success. Replanting plans often failed for lack of a comprehensive survey of the installation's SAV beds that would provide the necessary background information for a successful planting program. In the meantime, the CBP could not account for Aberdeen's SAV in its monitoring and restoration program because it lacked data and could not monitor the installation's restricted areas.

In January 1996, a partnership began in a classroom at the University of Maryland that has since developed into an installation program and partnering effort. Julie Bortz and Paul Cisar were two students in the university's Natural Resources Management Program that needed to conduct an environmental study for a final project. They approached the U.S. Army Environmental Center (USAEC), where Cisar is employed as an environmental protection specialist, with a proposal to map the installation's SAV beds and monitor its water quality.

The result of the proposal was an installation/interagency partnership between USAEC, the U.S. Army Research Laboratory (ARL), and APG's Directorate of Safety, Health, and the Environment (DSHE). ARL provided a boat, office space, new monitoring instruments, and people to work with the SAV team. Bortz was hired as a full-time intern and SAV team coordinator through the Oak Ridge Institute for Science and Education (ORISE) program. Dr. Jim Bailey, biologist and watershed management specialist at DSHE, provided program oversight.

Bortz established 40 monitoring sites throughout APG's waters, which include several small islands and segments of the Bush and Gunpowder Rivers. From March through November, the SAV team sampled at these monitoring sites

for total suspended solids, phosphorus and nitrogen, chlorophyll *a*, salinity, acidity, and other indicators of water quality.

Other agencies and organizations provided expertise and input. Stan Kollar, a professor at Harford (County) Community College and an SAV expert, and Peter Bergstrom, fish and wildlife biologist with the U.S. Fish and Wildlife Service (USF&WS) and chairperson of the CBP's SAV Workgroup, provided the team with standard operating procedures for water quality sampling and monitoring, SAV identification guides, and other technical guidance and support. The Alliance for the Chesapeake Bay provided equipment and helped train the SAV team on standard water quality monitoring procedures. These exchanges made the SAV team's efforts more efficient, because the experts shared valuable advice. The partnerships also helped the team collect and evaluate data using methods that can be incorporated into the CBP's SAV database.

The data and findings are being evaluated and consolidated into a report. From the visual mapping phase of the project, however, APG discovered that it had more SAV than the sporadic surveys of the past and annual overflight photograph surveys had indicated. According to Bortz, "APG thought they had 125 to 250 acres of SAV, but our surveys revealed that they had more than 1,200 acres." Fifteen species of SAV were discovered during the survey, with Eurasian watermilfoil (*Myriophyllum spicatum*), hydrilla (*Hydrilla verticillata*), wild celery (*Vallisneria* americana), common waterweed (*Elodea canadensis*), and coontail (*Ceratophyllum demersum*) being the most predominant species.

The SAV team is expanding its efforts and its program. Bortz presented the study's findings to the CBP's Monitoring Subcommittee SAV Workgroup and has become a regular representative for the Army at these meetings. In the

spring of 1997, the SAV team continued monitoring SAV and sharing its data with the CBP. APG worked with several agencies to develop a video on SAV that highlights the installation's efforts.

The installation started the restoration phase of its program by planting new SAV beds in the summer of 1997. It established a partnership with the University of Maryland to provide research assistants who will help plant SAV while they gain field experience. The post also teamed with Harford Community College where students will monitor water quality in areas of the Bush River adjacent to APG to supplement APG's information about the tributary. The team also plans to develop SAV mapping, monitoring, and restoration guidance for other Bay area installations to use and will travel to these installations to help them establish their programs.

The partners are enthusiastic about the program and foresee progress toward the Bay's restoration efforts. "When I first came on this project, I thought that it was just going to be me going out on the boat. I think that's what the general consensus was —— that this was going to be a small-scale program, a pilot study. I've been happily shocked at all the support and enthusiasm that the project has gotten. Everyone's been helpful, supportive, and enthusiastic," said Bortz.

"I for one am delighted to see that the APG program is up and running," said Kollar, "because I think it sets testimony to the fact that everybody, the federal government included, realizes the importance and the value of this resource. The more rapidly we can reestablish SAV throughout the Bay, the more rapidly the Bay will come back from its downturn, and the more rapidly the finfish, shellfish, and waterfowl will return to their former levels of abundance and diversity. This effort is just one more cog in the whole machine that is attempting to reestablish the former health of the Bay."